NANOTECHNOLOGY IN AGRICULTURE

PROF. MAINAK DAS
Dept. of Biological Sciences and Bioengineering & Design
IIT Kanpur

TYPE OF COURSE : Rerun | Elective | UG | PG
COURSE DURATION : 8 weeks (17 Aug'20 - 09 Oct'20)
EXAM DATE : 17 Oct 2020

INTENDED AUDIENCE : B.E/B.Tech, M.E/M.Tech
PRE-REQUISITES : 10+2 in science
INDUSTRIES APPLICABLE TO : Agriculture industry, Seed industry, Fertilizer industry, Food technology industry

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COURSE OUTLINE :
Modern agriculture is a chemical intensive process starting from fertilizer, pesticide to food preservation. Modern nanotechnology tools if used judiciously in future, have the ability to offer sustainable development along with the optimal, precision and more effective use of chemicals. In this course, I will be sharing my journey from basic agriculture to modern day nanoparticle based agriculture practices.

ABOUT INSTRUCTOR :
Prof. Mainak Das is a faculty at Biological Sciences and Bio-engineering & Design program. He works in the areas of bio-electricity, green energy, physiology, and sensor. He has a BS training in agriculture, MS training in animal physiology and a doctoral training in biomedical sciences. He has been working in the area of nanotechnology application in animals and plants for the past 18 years.

COURSE PLAN :
Week 01 : History of agriculture and the role of chemicals in modern agriculture
Week 02 : Overview of nanotechnology
Week 03 : Application of nanotechnology in modern day agriculture practices I
Week 04 : Application of nanotechnology in modern day agriculture practices II
Week 05 : Application of nanotechnologies in animal production
Week 06 : Nanotechnology and shelf life of agricultural and food products
Week 07 : Nanotechnologies for water quality and availability
Week 08 : Green nanotechnology and the role of good governance and policies for effective nanotechnology development